National Standard Eight and Processing Labor: An Assessment of Processors in The Mid-Atlantic Region

Photo by Bonnie McCay, Rutgers University.

James E. Kirkley[1]
Bonnie McCay[2]
Bryan Oles[2]
Winifred Ryan[1]
Satsuki Takahashi[2]
Wendy Weisman[2]

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[1]James E. Kirkley and Winifred Ryan are with the College of William and Mary, School of Marine Science, Gloucester Point, VA 23062.

[2]Bonnie McCay, Satsuki Takahashi, and Wendy Weisman are with Rutgers University, Department of Human Ecology, New Brunswick, NJ 08901. Bryan Oles is now with NOAA, MPA Center, Santa Cruz, CA.

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Executive Summary

The Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA) of the United States mandates that most fisheries in the Exclusive Economic Zone (EEZ) be managed to ensure sustainability of the fisheries and promote maximum net benefits to society. To do so, however, requires consideration of the social and economic ramifications of fisheries management and regulation. Numerous laws and policies specify or require that the social and economic consequences of management and regulation be thoroughly analyzed, and the potential consequences be summarized in an environmental impact statement (EIS).

To date, however, most social and economic analyses have focused on providing broad overviews and profiles of fishing and fishery-dependent communities and the potential ramifications of proposed management strategies and regulations. In large part, this has been because of inadequate data. This has particularly been the case for processing labor. Out of a concern to provide better social and economic assessments of fishery-dependent labor in downstream market sectors, which have typically been given limited attention in EISs, the Northeast Fisheries Science Center of NOAA Fisheries provided funding to obtain information on labor in the processing sector.

In this report, we provide a broad overview of the processing sector in the Mid-Atlantic region, which we defined as those firms engaged in processing and conducting business in New York, New Jersey, Pennsylvania, Maryland, Virginia, and North Carolina. Delaware also is in the region, but the data on processing activities in Delaware were inadequate, and thus, processing activities in Delaware were not included in this study. The objective of this study was to obtain information about processing labor dependency on fisheries subject to federal fishery management plans (FMPs); assess how changes in fishery regulations might affect labor; determine product levels and sources of raw materials required for processing fish and shellfish products; assess the distribution of sales by geographic region and market level; determine the level of employment and types of jobs in processing; assess the distribution of labor by gender, job or occupation, race, and national origin; determine the dependency of processing plants on H2B workers; assess how other types of regulations (e.g., land-use policies, environmental, and OSHA) may have affected processing activities; and assess the potential future plans of processors.

A survey questionnaire, to be administered in person and on-site of the processing plant, was developed and field-tested. Forty questions were included in the survey; a related labor questionnaire was also developed, which included 25 questions. It became apparent during early field testing of the survey

questionnaires, however, that it would be very difficult to conduct a large number of interviews with workers. Using the NOAA Fisheries processed products file, a sampling scheme was developed using a 20 % error relative to employment and value and volume of processed product. A 20 % rate of error required 44 completed surveys, which became the targeted number of completed interviews.

Unfortunately, many of the processors identified in the sampling scheme either refused to be interviewed, or indicated they did not have adequate time for an interview. It, thus, became necessary to target certain processing companies based on prior experience and familiarity with the company and plant manager/owner. A total of 38 interviews were conducted and completed.

Analyses of the survey data revealed many important conclusions about processing activities and processing labor. One important finding was that it appears that processors are increasingly relying on foreign and out-of-region suppliers of raw materials. This was the case even for mackerel and herring, which are widely available in the Northwest Atlantic. Processors in North Carolina, however, substantially depended upon local supplies of finfish and shellfish. Another finding was that there has been an apparent decline in processing activities; several plant managers or owners indicated that they had increasingly switched from processing finfish and shellfish to simply repackaging and shipping finfish and shellfish. An expected finding was that processors sold the majority of their products out of the immediate municipality or geographic region, with varying levels being sold in state and out of state. Approximately 50 and 37 % of the processors indicated they sold, respectively, to out of state and to foreign buyers. It was also determined that approximately 85 % of the processors sold to other processors or wholesalers rather than to restaurants, retail outlets, and institutions.

Of the 38 firms interviewed, 19 or 50 % indicated that they purchased species subject to federal FMPs. Species identified by processors as being subject to an FMP included cod, flounder, haddock, surfclam, ocean quahog, monkfish, sea scallops, bluefish, illex squid, loligo squid, smooth dogfish, mackerel, herring, and black sea bass. Tuna and mackerel were also purchased, but are managed by the Highly Migratory Species FMP, which comes directly under NOAA Fisheries, and not the MSFCMA. Other species subject to some type of management, but imposed by the state, included oysters, blue crabs, sea trout, croaker, spot, conch, menhaden, shrimp, and bay scallops.

Although the occupations of workers listed by processors widely varied, it was possible to determine 14 unique job categories. Of the 14 categories, it was determined that processing or production workers accounted for nearly 49 % of

the total number of individuals employed by processors. Quality control workers accounted for the next highest level of employment—10.1 %. Individuals employed in management accounted fo 6.4 % of all individuals employed in processing plants. Nearly 8.0 % of the total workforce was employed as crew on a fishing vessel or as a dock worker. The remaining distributions were as follows: (1) day laborers—5.1 %; (2) cooks or food preparers—0.3 %; (3) weight-station workers—0.3 %; (4) truck drivers and delivery personnel—4.2 %; (5) maintenance—2.4 %; (6) shippers-5.4 %; (7) book keepers—0.7 %; (8) office workers—3.1 %; and (9) sales—3.0 %.

Relative to the total number of individuals employed in processing, approximately 57.8 % were females. Females employed as production workers accounted for 31.9 % of all individuals employed in processing; males accounted for 18.4 % of all individuals employed in processing. Females also accounted for the majority of individuals employed as office workers; female office workers accounted for 18.2 % of all employed in processing.

A question used to estimate employee distribution by race resulted in some unusual responses by processors. There apparently was some confusion about race vs. ethnicity vs. nationality. A few processors provided number of employed according to whether or not they were from a Caribbean nation, the Philippines, or Caucasian and Jewish. Overall, Caucasians accounted for 51.6 % of all employees; Hispanics accounted for 26.6%; and 20.2 % of the total work force was African-American.

It was also determined that H2B workers were very important to processing activities. H2B workers accounted for nearly 26 % of the total number of individuals employed in processing. These individuals, however, were mostly employed as production workers in crab and oyster processing plants (e.g., crab pickers and oyster shuckers). Companies or plants that processed finfish did not indicate a high degree of reliance on H2B workers.

Managers were also asked about the options for employment outside the plant should a plant be forced to scale back or shut down. About 32 % of the managers indicated it would be difficult for employees to find alternative employment; 29 % indicated they believed it would be easy for employees to find alternative employment; and 16 % of the processors believed that existing employees would have to leave the area to obtain or employment, or because they were H2B workers.

Relative to the perceived impacts of regulations, processors' responses widely varied. A total of 81.6 % of the processors indicated they believed that fisheries management and regulation had affected their business. Three

responses by surfclam processors, however, indicated that the impact of management (specifically the imposition of individual transferable quotas) was good. Nearly 82 % of the processors indicated that they did not believe that land-use policies had affected their businesses. Almost 53 % of the processors indicated that environmental regulations had affected their businesses. Processors' perceptions about how OSHA had affected their businesses were mixed, with 50 % indicating that OSHA regulations did not negatively affect their business, and 50 % indicating that OSHA regulations had affected their businesses.

An interesting finding about the impacts of regulations was that many processors did not really know which state or federal agency was responsible for certain types of regulation. That is, processors often indicated that a particular federal FMP had negatively affected their business, when in fact, the particular species or fisheries was managed either by the state or via regulations established by the Atlantic States Marine Fisheries Commission. Some processors also confused environmental regulations with fishery regulations and OSHA regulations with Food and Drug Administration regulations.

Last, processors were asked about their plans for the future. Approximately 32.0 % indicated they planned to expand processing activities in the future. Eleven percent indicated they intended to contract operations. Nearly 30 % of the processors indicated they planned to offer a greater selection of products, especially value-added products, in the future (i.e., diversify their product line). The majority of the processors, however, indicated they had other plans for the future, but when further questioned about other plans, most indicated that their other plans amounted to continue existing operations (i.e., the status quo).

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1.0 Introduction to Study

1.1 Introduction

National Standard Eight (NS-8) requires that the management and regulation of commercial fisheries consider the potential social and economic impacts of management on communities dependent upon commercial fisheries. Thus far, however, there has been little effort extended to assess the full realm of potential impacts on communities. Most social and economic information contained in Environmental Impact Statements (EIS), which are required to support management and regulation, summarizes the potential changes in prices, revenues, profit, number of vessels, and employment, and provides community profiles. To a great extent, however, the estimation and assessment of economic and community impacts seldom consider the processing sector.

The limited attention given to the potential ramifications of regulation and fisheries management for communities is due, in large part, to the limited information available on processing activities. In response to the deficiency of information about the processing sector, the Northeast Fisheries Science Center (NEFSC) of NOAA Fisheries, under the Cooperative Marine Education and Research (CMER) Program, provided funding to obtain information relevant to processing activities in the Mid-Atlantic region. The primary objective of the study was to determine the dependency of processors on northeast commercial fisheries, which includes species from the Mid-Atlantic region. Another task of the proposed work was to develop a database consisting of information on processing activities. The study was initiated in late 2003, and data were obtained through early 2005.

In this report, we provide a brief overview of the study methodology, questionnaire used to conduct on-site interviews, summary statistics related to processing activities, and some major findings or conclusions about processors' dependency on Northeast species and labor force participation. We note, however, that the results are extremely limited, and may not be representative of processing activities in the Mid-Atlantic region. This was partially because the available NOAA Fisheries processed products database was extremely sparse in terms of providing a detailed listing of processors in each of the Mid-Atlantic states (e.g., a dealer/processor database for Virginia indicated that there were 347 firms licensed to process seafood in Virginia in 2002; the NOAA processed products file indicated that just 32 companies were licensed to process in Virginia in 2002).[1] Another reason why the results may not be representative of

[1]One reason for the discrepancy may be how NOAA and Virginia define processors and collect information on processors. NOAA Fisheries, however,

the region is that we were able to complete only 38 surveys for the entire Mid-Atlantic region. This was largely a result of the unwillingness of processors to be interviewed.

1.2 Summary of Results

Of the 38 firms surveyed, it was determined that approximately 20 processing companies relied, at least, partially on species managed by either the New England Fishery Management Council, the Mid-Atlantic Fishery Management Council, the South Atlantic Fishery Management Council, or NOAA Fisheries. That is, these companies were engaged in processing species, which had some type of fishery management plan (FMP) in place regulating the various species. This does not mean, however, that the species being processed were necessarily landed in any of the Northwest Atlantic fisheries or even in the United States, or were even subject to a U.S. FMP. For example, several companies, which indicated they processed herring, mackerel, and northwest Atlantic pollock, imported 100 % of their raw product for processing. In contrast, 19 of the 38 companies had some level of reliance of species managed under a FMP, and actually landed in a Northwest Atlantic state between Maine and North Carolina. These 19 companies accounted for approximately 102.9 million pounds of processed product. Mackerel and squid processed in New Jersey, however, accounted for 71 % of the total volume of processed product.

Relative to labor needs and dependency on H2B workers, the study found a large disparity relative to products being processed. Companies engaged in processing crabs and oysters, or having a high level of labor-intensive activities, relied heavily on H2B workers. Companies engaged in processing finfish, particularly multiple species, indicated little reliance on H2B workers. Similarly, companies engaged in processing finfish generally indicated that it was difficult to obtain and retain labor, whereas other firms, particularly those engaged in processing crabs and oysters, indicated a strong dependency on H2B workers but relative ease in obtaining labor.

Another finding related to whether or not a firm processed mostly finfish or shellfish was whether or not a firm was operating at capacity. Companies engaged in processing crabs, oysters, and scallops generally reported that they were not operating at capacity because of inadequate supplies of raw materials. In contrast, firms processing finfish, surfclams, and ocean quahogs reported they believed they were operating at full capacity.

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does collect information on quantities produced and sales value; the state of Virginia does not collect or compile such information.

In terms of the distribution of product to type of establishment, market level, or business (e.g., wholesale, retail, restaurant, and institution), 84.6, 11.2, 3.8, and 0.5 percent was distributed, respectively, among wholesalers, retailers, restaurants, and institutions. Finfish, scallops, surfclams, ocean quahogs, and squid had the largest volume distributed among wholesalers. Finfish and squid distributed to wholesalers accounted for 61.0 % of the total distribution of all products among all potential outlets. Shrimp and all products combined (this was the case when processors simply considered everything in aggregate) had the largest distribution from processors to retailers.

It was determined that the majority (58.2 %) of processing plant workers were employed as production or processing workers (e.g., crab meat pickers and oyster shuckers). Most of the production workers, however, were female. Females accounted for 57.8 % of the total number of individuals employed by processing companies. U.S. citizens and individuals from Mexico accounted for 96.3 % of the total number of individuals employed by processing plants. Caucasians (51.0 %) , African-Americans (20.2 %) , and Hispanics (26.6 %) held 97.8 % of all jobs in processing plants.

Results of the study also revealed that, while some processors (32 %) believed it might be difficult for employees to obtain alternative employment if the plant was closed, 29 % believed that employees could easily find work in other positions. Sixteen percent of the processors, however, indicated that employees would probably have to leave the area if their plant were closed.

The study also sought information about processors' perceptions of the effects of various types of management and regulation. They were asked questions about fisheries management, land-use policies, environmental regulations, and OSHA regulations. The responses, however, revealed that many processors were confused about what various agencies actually managed; this was particularly the case with respect to state and federal management of fisheries. Overall, 81.6 % of the processors indicated that fisheries management had some effect on their business; only 18.4 % of the processors believed that land-use policies had affected their business; 52.6 % of the processors indicated they thought that environmental regulations had affected their business; and 50 % indicated that OSHA and related regulations had affected their business.

Results of study revealed that approximately 32.4 % of the processors had plans to expand in the future. In contrast, 37.8 % of the processors indicated they had other plans; it turned out, however, that the majority of the 37.8 % of the processors indicating other plans really intended to maintain the status quo. Nearly 30 % of the processors indicated they plan to diversify their product line in the future.

2.0 Methodologies and Survey Questionnaire

2.1 Overview of Methodology

A major objective of this study was to obtain information necessary for determining the social and economic dependency of processing labor on species of fish harvested in the Northwest Atlantic, with special reference to federally managed species landed in the Mid-Atlantic resource area. Emphasis was given to collecting information on employment by race, national origin, and gender; wages and salaries; tenure with company; type of job; and difficulty of hiring and retaining employees. Additional information collected included the volume of species processed in a year, percent of value, by species, of all products sold, daily plant capacity, sources of product for processing, distribution or sales of product, size and age of facility/company, and potential effects of various local, state, and federal regulations.

Two survey instruments were designed for conducting on-site interviews of plant managers, owners, and when possible, laborers. The survey questionnaire for plant managers and owners is depicted in Table 2.1. A total of forty questions about processing operations, employment, and labor dependency were asked of each interviewee. The labor survey questionnaire asked 25 questions related to area of residence, household size, employment, demographics, and earnings (Table 2.2).

A major problem of the study was the determination of sample size, such that the responses would be representative of processors. The determination of sample size was made difficult by the inadequacy of available information on processing activities. NOAA Fisheries, the Food and Drug Administration (FDA), various state agencies, and trade associations all apparently use different criteria for determining whether or not a company is engaged in the processing of finfish and shellfish, and thus, indicate a substantially different number of companies engaged in processing activities. Moreover, the NOAA Fisheries database is the only data source, which identifies the product, quantity sold, and dollar value of sales, and therefore, is the only source of data, which can be used to statistically determine a sample size.

The NOAA Fisheries processed product database indicated that only 112 firms engaged in some type of processing in 2002, the most recent year for which data were available.[2] Upon additional review, however, it was discovered that four of the 112 plants had stopped processing in 2003 or 2004. Sample size

[2] This was the number of firms identified by NOAA as being located between New York and North Carolina, which was the selected study area.

was, subsequently, based on quantity of processed product and the sales value of processed product. Sample size was initially selected for an error rate of 5 %, but it was determined that to stay within an error rate of 5 %, nearly all plants or firms would need to be sampled (107 out of 108 companies). It was later decided than an error of 20 % would be used, which generated a sample size of 44 companies (Table 2.3). Allowing for rejection by companies to be interviewed, it was decided to develop a list of 54 potential firms to be sampled (Table 2.4).

Following review of the sample size and field-testing of the questionnaires, appointments were made the plant mangers to conduct the on-site interviews. Four individuals, each of which received training by Human Resources in conducting personal interviews, conducted the interviews, and subsequently, entered the information into an Access database.

2.2 Augmenting and Randomizing the Survey

After conducting a limited number of interviews, it became apparent that the survey strategy or sampling scheme was inadequate. Several firms indicated an unwillingness to be interviewed, and often those firms which were interviewed processed a limited number of products and species. Alternatively, the information being obtained lacked sufficient variability. It was, subsequently, decided to target other processing companies which were known to process species which were harvested in the Northwest Atlantic and subject to an existing Fishery Management Plan (FMP). As such, the random nature of the data was reduced, and it is likely that some additional level of bias was introduced into the data and results of the study. A total of 38 firms provided information on processing activities and employment.

Table 2.1. NOAA/CMER Processing and Labor Study Interview

Name: Company Name:
Job Title: Company Address:
Phone Number: Fax Number (if applicable):
E-mail Address (if applicable):
Processing Operations

1. Physical plant features:
a. Facilities and square footage:
b. Linear feet of dockage, if any:
c. Major offloading, ice making, and processing equipment:
d. Processing plant daily capacity:
e. Are you operating at full capacity? If not, why not?
2. How long has your company been in business?
3. How long has this facility been in this location?
4. Please complete the following table to more fully describe the species your facility handles by volume, season, estimated percent value of your business, and processed product (e.g., fresh fillets, frozen blocks, breaded portions, etc.)?

Species	**Volume**	**Products**	**%Total Value**	**Major Seasons**

5. What have been the major changes, if any, over the past 10 years in the focus of the company's processing operation (e.g., for scallop processing, late 1980s, fresh bag; now more 5 lb. boxes frozen; more processing at sea by boats)?

Suppliers

6. For each of the major species you handle, please indicate the sources (including specific ports/cities in the US and abroad) and estimate the percentage of product from each place.

7. What percentage of your supply do you get from the following categories of suppliers and where are they located?

	Percentage	Location(s) - be as specific as possible as to the ports/cities
Own Vessels		
Other Vessels Total		
Long-term arrangements		
b. Spot purchases		
Middlemen (Dealer)		
Processor (for repackaging)		
Other		

8. Do you provide goods and services to your suppliers (such as ice, dockage, and fuel)? If so, describe.

9. What kinds of contracts or other arrangements do you have with suppliers?

10. Do you experience seasonal fluctuation in supply? If yes, please describe its effect on the operations (e.g., access to markets, employment) and any measures taken to handle it.

11. Have there been any changes in the source of supply over the past 10 years in terms of how you get supply and where you get it? Please describe.

Marketing/Distribution

12. Please indicate the percentage of each species that you send to the following markets.

Species	Other Wholesalers, Processors, Distributors	Retail Outlets (fish markets, grocery stores, own retail store)	Restaurants	Institutions (hospitals, schools, etc.)

13. Where are these markets located? (For each of the combined categories above, e.g. *loligo* squid/Wholesale)

Species/Market	% in county	% in state/out of county	% out of state/US	% international

14. How is your product transported (e.g., company truck; leased truck; trucking firm; other)?

15. What changes have taken place in your marketing over the past 10 years (e.g., market type and location)?

Employment

16. How many people work for your company now?

17. What changes have taken place in employment over the past 10 years (e.g., expansion, contraction, major hiring or lay-offs)?

18. Please complete the following form.

Job Categories	Number of Employees	Typical Work Schedule	Salary Range	Average Tenure with Company	% Female	Racial Categories, Estimated % of Each	% of H2B workers	National Origin, Estimated % of Each	How hard is it to find and keep these employees?
									Easy____ Medium___ Difficult_X_
									Easy____ Medium___ Difficult___
									Easy____ Medium_X_ Difficult___
									Easy____ Medium___ Difficult___
									Easy____ Medium___ Difficult___
									Easy____ Medium___ Difficult___

19. For those categories that are difficult to recruit and keep, what are the reasons for the difficulties, and what is the company doing to deal with the difficulties?

20. If the plant were to close, what employment options would be available to the employees?

21. Are any of your employees contract laborers? If so, what kind of contracts do you have with them or their contractors?

22. Where do employees in each of the above categories tend to live? Please provide town names AND estimated distance from facility.

23. How do the employees get to work? (Note which job categories go with each mode of transportation.)

a. Private car or ride share
b. Plant-organized car or van pool
c. Public transportation
d. Walk
e. Other

24. What other businesses do you compete with for workers?

25. What benefits in addition to wages are available to your employees?

26. Why do people work here rather than elsewhere?

Community Ties

27. From what other local businesses, if any, does this operation or the employees of this operation purchase goods or services (e.g., local welders and electricians to repair equipment and local convenience store where employees purchase lunch or breakfast)?

28. What other local businesses or individuals, if any, purchase or otherwise obtain your product or waste product (e.g., local farmer removing clam shells for fertilizer)?

29. What are the significant or well-known local civic associations of this company's owners, staff, if any?

30. Does the company volunteer time or contribute financial or other donations to local groups?

32. Are there any newer local businesses or residential developments that contribute to or perhaps conflict with your business's operations?

Regulations

33. What effects, if any, have changes in federal or state fishery regulations made to your business?

34. What effects, if any, have changes in local land-use policy and other developments made to your business?

35. What effects, if any, have environmental regulations made to your business?

36. What effects, if any, have occupational health and safety and labor regulations made to your business?

Personal

37. How long have you been in this business?
38. How did you get into this business?
39. Do any of your family members work in this business? In what positions?

Future

40. What are your plans for the future of this business and why? *Check all that apply.*

- ❑ Expansion of the operation
- ❑ Contraction of the operation
- ❑ Diversification or redirection of product line
- ❑ Capital investments to increase labor productivity, reduce labor costs
- ❑ Increased reliance on other businesses
- ❑ Decreased reliance on other businesses
- ❑ Other:

Please explain:

Table 2.2. Labor Questionnaire

Name:
Company Name:
Place:

Residence

1. In what town/city/borough (for VA, county) do you currently live?
2. Do you live there year-round?
3. If not, where else do you live? At what times do you live there?
4. Do you: (check all that apply)
_____ own your home?
_____ rent your home?
_____ stay with relatives (someone other than wife and children)? (family member owns house, but she lives alone)
_____ stay with friends?
_____ stay in housing provided by employer?

5. How many people live in your household?
6. Who do you live with? (check all that apply and include number)
____ Spouse
____ Children
____ Other relative(s)
____ Roommate(s)
____ Coworker(s)
7. How many other members of your household are employed?
8. Do you support anyone outside of your household?

Employment

9. What is your current job? (e.g., admin/office/managerial, dock hand, winch operator, fork lift operator, "line" work - cutting/packing, other)
10. How long have you held this position?
11. How did you get this position?
12. What is your work schedule? (check all that apply)
____ Part-time
____ Full-time
____ Seasonal, if seasonal, do you return? yes
____ Year-round
13. How many hours per week do you work?
14. How do you like your job (e.g., benefits, problems, difficulties, etc)?
15. What other types of work have you done?
16. Do you have another job at this time?
17. If this plant closed, where would you go? What would you do?

Demographics

18. Age:
19. Gender: ___M ___F
20. What is your country of origin?
21. Are you: ___Married ___Divorced /Separated ___Single ___Widow(err)?
22. Do you have children? If yes, how many?

23. What is the highest grade of school that you completed?
____ 8th grade
____ Some High school
____ Graduated High school
____ Technical/vocational school
____ Some College
____ Graduated College (BA/BS/AA/AS)
____ Postgraduate college
24. How much do you earn from this job in a year?
25. What is your total household income?
____ <$18,244 (2002 poverty level for four person household with 2 children)
____ $18,244 – 42,400 (median household income for 2002)
____ >$42,400

Table 2.3. Number of Firms to be Sampled for 20 % Level of Error

Plant State	Total Number of Plants	Coefficient of Variation (0.15)	Coefficient of Variation (0.20)
Delaware	1	1	1
New Jersey	15	13	11
New York	6	6	5
Pennsylvania	3	3	3
Maryland	18	16	15
Virginia	33	26	22
North Carolina	32	22	18
Total	108	59	44

Table 2.4. Firms Identified to be Interviewed

Company	State
ACME SMOKED FISH CORP	New York
GOLD STAR SMOKED FISH INC	New York
DOXSEE SEA CLAM CO INC	New York
SURFSIDE PRODUCTS	New Jersey
HILLARD BLOOM OYSTER CO	New Jersey
CAPE MAY FOODS	New Jersey
J & R FOODS INC	New Jersey
RUGGIERO SEAFOOD INC	New Jersey
THE B MANISCHEWITZ CO LLC	New Jersey
PROGESSO FOODS	New Jersey
SEA WATCH INTERNATIONAL LTD(MILFORD)	MARYLAND
CAPTAIN NEIL'S SEAFOOD	North Carolina
QUALITY CRAB CO INC	North Carolina
QUALITY FOODS FROM THE SEA	North Carolina
AURORA PACKING CO	North Carolina
BAY CITY CRAB CORP	North Carolina
CURRITUCK CRAB CO	North Carolina
GASKILL SEAFOOD INC	North Carolina
MURRAY L NIXON FISHERY INC	North Carolina
GULL ROCK SEAFOOD	North Carolina
GARLAND F FULCHER SEAFOOD CO	North Carolina
LLOYD OYSTER HOUSE INC	North Carolina
CAROLINA SEAFOOD	North Carolina
EUGENE LANCASTER'S OYSTERS	North Carolina
PAMLICO PACKING CO INC	North Carolina
DANIELS SEAFOOD CORP	North Carolina
CHESAPEAKE BAY PACKING LLC	Virginia
ICELAND SEAFOOD CORP	Virginia
WANCHESE FISH CO INC (SUFFOLK)	Virginia
PURCELL'S SEAFOOD INC	Virginia
BERNIE'S CONCHS	Virginia
CURLEY PACKING CO	Virginia
JOHN W ALLEN JR OYSTER HOUSE	Virginia
BEVANS OYSTER HOUSE & DIVISION	Virginia

Table 2.4. Firms to be Interviewed—Continued

Company	State
COWART SEAFOOD CORP	Virginia
KEYSER BROTHERS INC	Virginia
EASTERN SHORE SEAFOOD PRODUCTS INC	Virginia
LITTLE RIVER SEAFOOD INC	Virginia
OMEGA PROTEIN INC (REEDVILLE)	Virginia
WELLS ICE & COLD STORAGE INC	Virginia
SHORES & RUARK SEAFOOD CO	Virginia
ABBOTT BROTHERS INC	Virginia
COLDWATER SEAFOOD CORP	Maryland
DODSON & HANSEN INC	Maryland
METOMPKIN BAY OYSTER CO	Maryland
CHARLES H PARKS SEAFOOD CO INC	Maryland
A E PHILLIPS & SON INC	Maryland
W T RUARK & CO INC	Maryland
W H HARRIS SEAFOOD INC	Maryland
NANTICOKE FOODS LLC	Maryland
MEREDITH & MEREDITH INC	Maryland
THE COST PLUS	Pennsylvania
DELMONTE PET	Pennsylvania
H J HEINZ CO	Pennsylvania

3.0 Data Summary and Results of Survey

3.1 Summary and Overview of Species, Employment, and Production

Total production of all firms indicating some level of processing in 2002 equaled 748.9 million pounds. The 38 firms included in the survey accounted for approximately 73.2 million pounds of processed product in 2002.[3] Production by these firms, based on the survey data, equaled 161.9 million pounds in 2004. Based on the NOAA processed products database, the total value of processed products by the 38 firms equaled $168.7 million in 2002. Information necessary for determining the actual or reported level of production by the 38 firms in 2004 is not yet available from NOAA. In addition, and based on the survey data, the 37 firms employed a total of 1,749 individuals in 2004.

In 2002, the 38 companies processed a large variety of species. In fact, the 38 companies reported to NOAA Fisheries that they processed 44 different species of finfish and shellfish. The 38 companies reported in the survey that they processed approximately 35 different species in 2004. Of the 38 companies, 24 or 64.9 % reported they processed more than one species of finfish or shellfish in 2004. Moreover, 19 of the 38 firms indicated that they processed species, which were harvested in a northwest Atlantic fishery subject to an existing Fishery Management Plan (FMP). Not all FMPs or management plans were Council-based; tunas and certain other species are subject to management plans under the purview of NOAA Fisheries. Except for a limited number of species, however, most of the species processed by the firms were imported from other nations. For example, one company reported processing large quantities of Atlantic Pollock, but 100 % of the raw material was imported from Canada. Another company reported processing mackerel and herring, but again, 100 % of the raw material used from processing was imported from other nations.

A break down of sources of raw materials reveals some startling conclusions. Data obtained from the interviews indicates an increasing reliance on imports (foreign) and products from states outside (other) the northwest Atlantic region (Table 3.1). Of the various states, North Carolina exhibited the highest dependency on products landed either in North Carolina or in nearby coastal states. All the states, except North Carolina, Pennsylvania, and Virginia, had a high dependency on foreign imports.

[3] The 73.2 million pounds is actually for 35 of the 38 firms and is based on the data available in the 2002 NOAA processed products database.

Table 3.1. Species and Source of Species for Processing, by State (2004)

Processor State	Species	State Source	Percent
New Jersey	Ocean Quahog	New Jersey	100.0
	Oyster	Other	100.0
	Pike	Foreign	100.0
	Scallops	New Jersey	100.0
	Squid	Other	4.1
	Squid	New Jersey	95.0
	Squid	Foreign	0.9
	Surf clam	New Jersey	100.0
	Whitefish,	Foreign	100.0
New York	Black cod	Other	100.0
	Herring	Foreign	100.0
	Salmon, farmed	Foreign	96.8
	Salmon, wild	Other	3.2
	Surf clam	New York	100.0
	Whitefish,	Other	100.0
Pennsylvania	Bluefish	Other	100.0
	Cod	Other	100.0
	Croaker	Other	100.0
	Flounder	Other	100.0
	Salmon, farmed	Other	100.0
	Swordfish	Other	100.0
	Tuna	Other	100.0
Virginia	Scallops, Bay	Foreign	100.0
	Conch	Delaware	19.4
	Conch	Virginia	80.6
	Crab	Virginia	100.0
	Croaker	Other	10.0
	Croaker	Virginia	90.0
	Flounder	Other	10.0
	Flounder	Virginia	90.0
	Menhaden	Virginia	100.0
	Oyster	Other	90.2
	Oyster	Virginia	9.8
	Sea Scallops	Other	0.2

Table 3.1. Species and Source of Species for Processing--Continued

State process	Species	State Source	Percent
Virginia	Sea Scallops	Virginia	99.8
	Black Sea Bass	Other	10.0
	Black Sea Bass	Virginia	90.0
	Smooth Dogfish	Virginia	100.0
	Squid	Other	10.0
	Squid	Virginia	90.0
	Sea Trout	Other	10.0
	Sea Trout	Virginia	90.0

3.2 Plant Capacity and Limits

Although the concept of production capacity means many different things to individuals, it was defined for interviewees as the maximum possible daily production given existing equipment and input and output prices. Of the 38 companies interviewed, 29 firms indicated they were not operating at full capacity. Inadequate supplies of raw materials for processing was identified as the major reason why companies were not operating at full capacity, but this was mostly for companies processing blue crabs, oysters, and sea scallops. Alternatively, managers or plant owners indicating that the plants were not operating at full capacity tended to process products which were very labor intensive. Companies which processed mostly finfish, however, indicated they were operating at full capacity, but most of these companies obtained product from other regions of the U.S. or from foreign sources. Two other reasons often cited as to why companies were not operating at full capacity were market problems and inadequate labor supply.

3.3 Production and Species of Importance

Although the managers of the 38 firms indicated they processed a wide array of products and species, it appeared that only a limited number of species were of major importance. Blue crabs, oysters, surfclams, ocean quahogs, and sea scallops were the primary species processed for the majority of the firms. The 38 companies produced 81 different products, but only a limited number of species were of major importance. Blue crabs, cod, ocean quahog, oysters, salmon (farmed and wild), surfclams, shrimp, sea scallops, and mixed species (unclassified) accounted for 86.6 and 90.0 %, respectively, of the total quantity processed and revenue received from sales by these firms (Table 3.2).

Table 3.2. Production and Sales Dependency of Sample Firms on Species

Species	Pounds (1,000 lbs)	Percentage	Value ($1,000)	Percentage
Atlantic Croaker	31.7	0.04	29.8	0.02
Anglerfish	7.4	0.01	20.7	0.01
Blue Crab	3,977.6	5.34	26,293.4	15.17
Bluefish	29.5	0.04	79.9	0.05
Bay Scallop	8.6	0.01	7.7	0.00
Butterfish	2.6	0.00	2.1	0.00
Catfish	227.2	0.31	238.1	0.14
Chub	119.0	0.16	748.0	0.43
Cod	4,185.3	5.62	6,934.2	4.00
Conch	1,279.1	1.72	2,820.4	1.63
Flounder	1,094.9	1.47	3,274.4	1.89
Grouper	33.2	0.04	224.4	0.13
Haddock	1,021.0	1.37	2,992.1	1.73
Halibut	0.4	0.00	1.8	0.00
Herring	517.9	0.70	543.8	0.31
Mackerel	542.0	0.73	867.1	0.50
Mahi-mahi	2.1	0.00	10.0	0.01
Menhaden	2,000.0	2.69	500.0	0.29
Ocean Perch	8.2	0.01	25.3	0.01
Ocean Quahog	17,879.9	24.01	23,230.9	13.40
Oysters	2,477.3	3.33	11,513.8	6.64
Pollock	2,191.0	2.94	2,872.5	1.66
Red Hake	2.4	0.00	5.0	0.00
Striped Bass	1.6	0.00	5.9	0.00
Red Snapper	10.1	0.01	56.8	0.03
Salmon	2,302.7	3.09	17,344.9	10.01
Sea Bass	9.1	0.01	33.6	0.02
Surfclam	19,985.8	26.84	30,254.8	17.46
Shark	104.0	0.14	54.5	0.03
Silver Hake	14.9	0.02	8.6	0.00
Shrimp	1,764.0	2.37	11,097.6	6.40
Smelt	6.3	0.01	10.8	0.01

Table 3.2. Production and Sales Dependency—Continued

Species	Pounds 1,000 lbs	Percentage	Value ($1,000)	Percentage
Spot	0.8	0.00	1.3	0.00
Squid	29.4	0.04	52.8	0.03
Sea Scallops	2,024.5	2.72	7,258.1	4.19
Sea Trout	7.0	0.01	23.0	0.01
Sturgeon	45.0	0.06	714.5	0.41
Swordfish	16.6	0.02	101.4	0.06
Tilapia	127.7	0.17	362.7	0.21
Trout	14.4	0.02	25.3	0.01
Tuna	31.9	0.04	222.0	0.13
Turbot	30.7	0.04	116.5	0.07
Unclassified	9,918.4	13.32	21,181.9	12.22
Whitefish	379.6	0.51	1,156.3	0.67
Total	74,462.7	100.00	173,318.7	100.00

3.3.1 Sources of Product

The 38 firms identified a wide array of sources of product. Most of the firms, except those in North Carolina, however, indicated they depended mostly on suppliers from outside the Mid-Atlantic region, and many indicated they depended substantially upon imported products. New Jersey firms, however, also heavily depended upon local suppliers, particularly for squid, monkfish, mackerel, surfclams, and ocean quahogs.

One question requested the interviewee to identify the source of product relative to whether or not it was obtained from a company owned vessel; purchased from other vessels; purchased from a middleman; purchased from a processor; or obtained from other sources. Responses to this particular question generated considerable confusion because many processors indicated they received the majority of their product from areas outside the region and from imports. Overall, plant managers or interviewees indicated that, on average, 7.3 % of their product was obtained from a company owned vessel; 36.3 % of their raw material was purchased from other vessels; 47.3 % was obtained from middlemen (e.g., brokers, dealers, and wholesalers); 7.0 % was obtained from other processors; and 2.0 % was obtained from other sources. One company, in fact, indicated they received 100 % of their product from other vessels because their product was offloaded in Seattle from a cargo vessel, and subsequently, trucked or shipped by rail to New York.

3.3.2 Markets and Product Distribution

Question 12 was asked to determine the marketing distribution of processed products. Interviewees were asked to identify the percent distribution of their product, by product, sold to other wholesales and processors, retail outlets, restaurants, and institutions. Most respondents were not able to easily answer this question by specific species or product form but could do so relative to total sales.

Respondents indicated that the majority (approximately 85 %) of the processed product was sold or distributed to wholesalers, dealers, and other processors. The retail sector was the second most important market outlet, with retail sales accounting for approximately 11 % of total sales. Processors responded that they sold 100 % of their processed product of illex, menhaden, and ocean quahog to other processors, wholesalers, and dealers. Species for which processors indicated they had high sales to retailers were blue crabs, finfish, oyster, and shrimp.

Table 3.3. Market Distribution of Processed Product (Percentage)

Product/Species	Wholesaler/Processor	Restaurant	Retail	Institutions
Conch	98	2	0	0
Blue Crab	31	3	66	0
Finfish[a]	85	2	12	1
Flounder	78	12	9	0
Illex	100	0	0	0
Loligo	91	5	5	0
Menhaden	100	0	0	0
Ocean Quahog	100	0	0	0
Oysters	50	21	28	0
Scallops	87	6	5	1
Shrimp	15	4	81	0
Surfclam	66	25	9	0
Total	85	4	11	0

[a]Flounder and finfish were divided into two separate categories because flounder was one finfish identified by processors as being frequently purchased from local fishing vessels.

When sales are examined relative to geographical area sold, it appears that for most states, the majority of the product is sold outside the county and outside the state (Table 3.4). Pennsylvania, New York, and North Carolina, however, all have a significant portion of their processed product sold within the state. New Jersey had the largest distribution of international sales. Maryland and Virginia both had very high levels of sales outside the state. The high level of outside sales in Maryland was mostly sales of blue crabs and oysters; Virginia's high level of outside sales was mostly associated with sales of oysters, blue crabs, and sea scallops.

Table 3.4. Sales Distribution Relative to Geographic Area (Percentage)

State	In County	In State Out of County	Out of State In U.S.	International
Maryland	0	4	96	0
North Carolina	1	43	52	4
New Jersey	0	2	22	76
New York	0	72	27	1
Pennsylvania	20	20	60	0
Virginia	0	9	84	6
Total	1	12	50	37

3.4 Employment

Plant managers were asked to provide information on the number of workers and wages and salaries by job category. Since the managers were given the discretion of listing the job categories, it became necessary to develop generalized categories after the surveys were completed. Fourteen different job categories were, subsequently, created to describe employment. The job categories were as follows: (1) production worker, which included shuckers and pickers; (2) day laborers, which included individuals engaged in general clean up; (3) cookers or food preparers; (4) weigh-station workers; (5) packers and washers; (6) truck drivers and delivery personnel; (7) maintenance; (8) shippers; (9) book keepers; (10) administrative and management; (11) office workers; (12) sales; and (13) boat crew and dock workers; and (14) quality control workers.

Unfortunately, the survey did not allow for a determination of employment on a per species or product basis. It was, thus, necessary to create species and product categories. Nine categories were used to relate employment to

processing activities: (1) blue crabs and oysters, (2) only blue crabs, (3) mixed finfish, (4) mixed shellfish and finfish, (5) only oysters, (6) scallops, (7) mixed shellfish, (8) only surfclams, and (9) surfclams and ocean quahogs. Depending upon the species, product, and extent of processing, employment widely varied on per plant basis (Table 3.5).

As might be expected, the highest level of employment was for production workers. Maryland had the highest mean number of workers per plant, but that was because of one plant which employed a very large number of individuals. Plants in New Jersey employed the second largest number of individuals per plant. Firms engaged in processing surfclams and mixed finfish and shellfish generally had the highest level of employment on a per plant basis; these firms were also the largest companies in terms of size of plant and quantity of product processed. For example, firms, which processed finfish had a mean plant size of 437.5 thousand square feet; and firms which processed surfclams had a mean plant size of 100.0 thousand square feet.

On a mean per plant basis over the entire sample, the number of employees by job category was distributed as follows: (1) production worker—48.5 %; (2) day laborers—5.1 %; (3) cookers or food preparers—0.3; (4) weigh-station workers—0.3 %; (5) packers and washers—3.1 %; (6) truck drivers and delivery personnel—4.2 %; (7) maintenance—2.4 %; (8) shippers—5.4 %; (9) book keepers—0.7 %; (10) administrative and management—6.4 %; (11) office workers—3.1 %; (12) sales—3.0 %; and (13) boat crew and dock workers—7.5 %; and (14) quality control workers—10.1 %.

Plants in all states except Maryland had some level of employment aboard fishing vessels or as dock workers. Virginia had the highest number of individuals employed, on a per plant basis, aboard fishing vessels or as dock workers. Firms in New Jersey had the largest number of production workers per plant. Plants with individuals employed in quality control work were restricted to processing shellfish; no plant manager of plants processing finfish reported having individuals employed in quality control. It is possible, however, that individuals employed in quality control might be viewed as administrative or managerial employees.

Table 3.5. Mean Level of Plant Employment by State and Processed Product

State	Species/Mix	Production	Day Labor	Cooker	Weigh_ Station	Packer Washer	Truck Driver	Maintenance	Shipping	Book Work	Administration/ Managers	Office	Sales	Boat Crew/Dock	Quality Control	Employment
Maryland	Blue crab/oyster	77.5	7.5				4.0				4.0	3.0				92.0
	Blue crab	18.5	2.0	0.0	0.0	0.0	0.5	0.0		0.0	2.5	0.5	0.0	0.0		24.0
	Finfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		500.0
	Mixed	2.0	0.0	0.0	0.0	0.0	1.0	0.0		0.0	1.0	0.0	0.0	0.0		4.0
	Shellfish	50.0				5.0		7.0	4.0		9.0				5.0	80.0
	Total	34.9	3.2	0.0	0.0	1.0	1.2	1.4	4.0	0.0	3.2	1.2	0.0	0.0	5.0	116.6
North Carolina	Blue crab/oyster	65.0				0.0		3.0			1.0			13.0		12.5
	bluecrab	30.3	2.5	1.0	1.0	1.3	1.0	0.0		0.0	1.3	1.2	0.0	0.0		36.3
	finfish	18.0					5.0					10.0		12.0		22.5
	Mixed	58.5	5.0			25.0	4.0	1.0			2.5	2.0	2.0	6.5		59.7
	Total	40.6	3.0	1.0	1.0	5.8	2.4	1.0		0.0	1.6	2.5	1.0	7.3		35.9
New Jersey	Finfish	29.0	0.0	0.0	0.0	0.0	0.0	4.0		0.0	9.0	0.0	0.0	0.0		42.0
	Mixed	125.0	0.0	0.0	0.0	0.0	10.0	8.0		0.0	5.0	8.0	7.0	0.0		163.0
	Oysters	5.0	0.0	0.0	0.0	5.0	0.0	0.0		0.0	1.0	1.0	0.0	1.0		13.0
	Surfclams	100.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	49.0	0.0	6.0	0.0		149.0
	Surfclams/quahogs	36.0	10.0					12.0			4.0	3.0			10.0	75.0
	Total	59.0	2.0	0.0	0.0	1.3	2.5	4.8		0.0	13.6	2.4	3.3	0.3	10.0	88.4
New York	Finfish	7.5	0.0	0.0	0.0	0.0	6.0	0.0		1.5	5.0	6.5	5.5	0.0		75.0
	Surfclams/quahogs	0.0	9.0	0.0	0.0	0.0	0.0	0.0		1.0	3.0	1.0	1.0	5.0		15.0
	Total	5.0	3.0	0.0	0.0	0.0	4.0	0.0		1.3	4.3	4.7	4.0	1.7		55.0
Pennsylvania	Mixed	10.0	5.0	0.0	0.0	0.0	10.0	0.0		3.0	0.0	0.0	3.0	0.0		28.0
	Total	10.0	5.0	0.0	0.0	0.0	10.0	0.0		3.0	0.0	0.0	3.0	0.0		28.0

Table 3.5. Mean Level of Plant Employment by State and Processed Product--Continued

State	Species/Mix	Production	Day Labor	Cooker	Weigh_ Station	Packer Washer	Truck Driver	Maintenance	Shipping	Book Work	Administration/ Managers	Office	Sales	Boat Crew/Dock	Quality Control	Employment
Virginia	Blue crab/Oyster	39.0	24.0													51.0
	Blue crab	36.5										3.0				38.0
	Mixed	35.3				6.0	7.5	2.0			7.0	3.5	6.0	60.0		72.0
	Oysters	20.0	1.0	0.0	1.0	1.0	1.0	0.0		1.0	0.0	0.0	0.0	0.0		25.0
	Scallops	13.0											5.0			18.0
	Total	32.2	12.5	0.0	1.0	3.5	5.3	1.0		1.0	4.7	2.5	3.7	30.0		48.6
Total	Blue crab/Oyster	60.5	13.0			0.0	4.0	3.0			2.5	3.0		13.0		51.8
	Blue crab	29.2	2.3	0.6	0.5	0.8	0.8	0.0		0.0	1.6	1.3	0.0	0.0		34.2
	Finfish	12.4	0.0	0.0	0.0	0.0	3.4	1.0		0.8	4.8	4.6	2.8	2.4		122.8
	Mixed	45.0	2.5	0.0	0.0	6.2	6.7	2.0		1.0	3.6	2.7	3.3	12.2		65.6
	Oysters	12.5	0.5	0.0	0.5	3.0	0.5	0.0		0.5	0.5	0.5	0.0	0.5		19.0
	Scallops	13.0											5.0			18.0
	Shellfish	50.0				5.0		7.0	4.0		9.0				5.0	80.0
	Surfclams	100.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	49.0	0.0	6.0	0.0		149.0
	Surfclams/quahogs	18.0	9.5	0.0	0.0	0.0	0.0	6.0		1.0	3.5	2.0	1.0	5.0	10.0	45.0
	Total	36.1	3.8	0.2	0.2	2.3	3.1	1.8	4.0	0.5	4.7	2.3	2.3	5.6	7.5	62.0

3.4.1 Wages and Salaries

Wages and salaries among the various plants widely varied. Unfortunately, the responses about wages and salaries were extremely limited and typically expressed only in general terms (e.g., production workers are paid either on the basis of production or on an hourly basis). Production workers were generally paid on an hourly or production basis; office and plant managers were usually paid an annual salary; office and other support workers were generally paid a weekly salary. Individuals employed in picking crabs received, on average, $6.73 per hour; oyster shuckers received, on average, $7.32 per hour; truck drivers and related employees received an average of $15.00 per hour; managers, owners, and foremen received between $30,000 and $100,000 plus, per year; and secretarial staff received up to $30,000 per year.

3.4.2 Race and Gender Composition

There were several problems with the data collected on race; the problems stemmed from how plant managers considered race vs. ethnicity and nationality. In general, the majority of employees were Caucasian; Hispanics and African-Americans occupied the second and third largest number of jobs (Table 3.6). To a large extent, however, the African-Americans and Hispanics were employed mostly as production or processing employees.

Table 3.6. Employee Distribution by Race

Race	Percent Distribution
Indian	0.1
African-American	20.2
Asian	0.7
Caribbean	0.1
Filipino	0.5
Hispanic	26.6
Caucasian	51.0
Caucasian--Jewish	0.6

Females dominated the workforce in processing, with approximately 58 % of the total workforce being females (Table 3.7). In contrast, males account for 42 % of all employees. Females, however, were mostly employed as production workers (e.g., oyster shuckers and crab meat pickers) and office workers. Nearly 32 % of the entire workforce consisted of females employed in production; 18.4 % of the entire workforce consisted of males employed in production. A larger percentage of males were employed in nearly all other job categories, except other, which consists of several types of employment.

Table 3.7. Gender Distribution of Processing Sector Workforce

Job Category	Females	Males
Administrative	1.2	3.8
Day Laborer	1.8	4.8
Dock Worker and Crew	0.5	4.2
Engineer	0.0	0.1
Maintenance	0.1	1.7
Office Worker	2.2	0.6
Production	31.9	18.4
Quality Control	0.4	0.6
Sales	0.3	1.3
Shipping	0.0	0.3
Support	0.0	0.5
Trucking	0.0	2.4
Weight/Packer	1.3	1.5
Other	18.2	2.1
Total	57.8	42.2

3.4.3 National Origin and H2B Workers

Plant managers were also asked about national origin of their employees and the percentage of workers, which were H2B workers (Table 3.8). A large majority (73.0 %) of the employees were from the United States; Hispanics accounted for the second largest number (23.4 %) of employees.

Table 3.8. Employee Distribution by National Origin

National Origin	Percent
Canada - of E. European Jewish ethnicity	0.00
Dominican Republic	0.00
Ecuador	0.00
Former Soviet Union	0.53
French Guyana "Indian"	0.12
Guatemala	0.00
Japan	0.06

Table 3.8. Employee Distribution by National Origin--Continued

National Origin	Percent
Korea, Vietnam	0.52
Latin America	0.38
Mexico	23.37
Nigerian	0.06
Other - Caribbean	0.19
Other - Caribbean (Trinidad/Tobago)	0.06
Other - Central American, Ecuador	0.58
Philippines	0.43
Polish	0.12
Polish/Polish American	0.23
Russian	0.40
Thailand	0.01
U.S.	72.96
Total	100.00

An issue of increasing importance to plant managers and owners has been the supply or availability of H2B Visa workers. In 2005, many companies in the Mid-Atlantic region had expressed considerable concern that they would not be able to process fish and shellfish because they could not obtain H2B workers. Processors did indicate a relatively high reliance on H2B workers; H2B workers accounted for approximately 26.0 % of the total workforce (Table 3.9). The majority of these employees worked as production workers, mostly for companies which processed oysters, surfclams, and crab meat. Of the 38 plant managers or owners interviewed, only five individuals whose companies processed finfish indicated any reliance on H2B workers.

Table 3.9. H2B Workers Distribution by Occupation

Job Category	Percent of H2B Workers
Admin	0.0
Day	0.4
Dock	1.0
Eng	0.0
Maint	0.0

Table 3.9. H2B Workers Distribution by Occupation--Continued

Job Category	Percent of H2B Workers
Office	0.0
Production	23.8
Quality Control	0.0
Sales	0.0
Shipping	0.0
Support	0.1
Trucking	0.0
Weigh/Packer	0.6
Other	0.0
Total	25.9

3.4.4 Difficulty of Obtaining and Retaining Employees

One question of concern with substantial ramifications for fisheries management and regulation dealt with the ease of finding and retaining employees. Processors were requested to indicate the ease or level of difficulty of finding and keeping employees, with respect to the various job categories. Relative to all 38 firms, 40.3 % indicated that it was difficult to obtain and retain employees; 29.4 % indicated there was a medium degree of difficulty in keeping and retaining employees; and 30.3 % of the firms responded that it was easy to keep and retain employees (Table 3.10). Firms in Pennsylvania and Virginia indicated the greatest level of difficulty in obtaining and retaining employees. Plants in North Carolina experience the least difficult in keeping and retaining employees.

Table 3.10. Level of Difficulty in Obtaining and Retaining Employees

State	Level of Difficulty	Percentage
Maryland	Difficult	43.5
	Easy	4.3
	Medium	52.2
North Carolina	Difficult	33.3
	Easy	50.0
	Medium	16.7
New Jersey	Difficult	23.3
	Easy	43.3
	Medium	33.3
New York	Difficult	46.2
	Easy	38.5
	Medium	15.4
Pennsylvania	Difficult	60.0
	Easy	40.0
Virginia	Difficult	58.3
	Easy	12.5
	Medium	29.2
Total	Difficult	40.3
	Easy	30.3
	Medium	29.4

The survey responses were too sparse to summarize level of difficulty by state and job category. Relative to all firms, however, plant managers indicated that the employment and retention of production workers posed the most difficult challenge (Table 3.11). Approximately 10.8 % of all managers indicated that hiring and retaining production works was difficult; 8.4 % of the managers, however, also indicated that it was relatively easy to find and retain production workers. Managers indicated that the positions with the least difficulty in hiring and retaining individuals were in sales, trucking, and quality control

Table 3.11. Level of Difficulty in Finding and Keep Employees, By Job

Occupation	Difficulty	Percentage
Administrative	Difficult	5.04
	Easy	4.20
	Medium	5.88
Day Laborer	Difficult	2.52
	Easy	5.04
	Medium	4.20
Dock Worker and Crew	Difficult	2.52
	Easy	1.68
	Medium	2.52
Engineer	Easy	0.84
Maintenance	Difficult	1.68
	Easy	0.84
	Medium	1.68
Office Worker	Difficult	1.68
	Easy	4.20
	Medium	2.52
Production	Difficult	10.08
	Easy	8.40
	Medium	7.56
Quality Control	Difficult	3.36
	Easy	0.84
	Medium	0.84
Sales	Difficult	4.20
	Easy	0.84
	Medium	0.84
Shipping	Easy	1.68
	Medium	0.84
Support	Difficult	0.84
Trucking	Difficult	5.04
	Easy	0.84
	Medium	1.68
Weigh/Packer	Difficult	3.36
	Easy	0.84
	Medium	0.84

3.4.5 Opportunities for Employment Outside of Processing

In the social and economic analyses often done to support fisheries management and regulation, a positive relationship between the level of employment and production activities is often assumed (e.g., a 5 % decline in production might result in a 1.5 % reduction in employment). Alternatively, when attempting to estimate the economic impacts, various occupations are often assumed in an effort to estimate the opportunity cost of labor. In this study, an effort was made to directly determine the potential ramifications of a plant closure on employment.

Unfortunately, plant managers provided a wide array of responses to the question "If the plant were to close, what employment options would be available to the employees?" It was, thus, difficult to examine the responses. The responses were so varied or generalized, in fact, that they could not be quantitatively summarized. For example, one manager stated the following: "Locally in the community it would be hard. About 50 people they employ are from the neighborhood. These people are not "cream of the crop" workers, and they would have trouble. We are a service society rather than a production society now, and this job is dirty and smelly and can be very physical. …Many have lived in _____ all their lives, but still seem not to speak English, only _____. "

Subsequently, the narrative responses were reviewed and grouped into one of four categories: (1) do not know, (2) easily find alternative employment, (3) difficult to find alternative employment, and (4) leave the area. The majority response (32 %) by processors was that it would be difficult for their employees to find alternative employment in the same geographic area (Table 3.12). Plant mangers indicating that labor would probably leave the state were mostly referring to H2B workers; this is because the H2B workers are assigned to a company, and cannot legally obtain alternative employment. Twenty-nine percent of the plant managers indicated that employees could easily find alternative employment, either in the same geographic area or nearby; 26 % of the respondents indicated they did not know alternative employment opportunities.

Relative to each state, respondents in Pennsylvania, New York, and Virginia indicated the highest levels of employees finding alternative work. Only one manager in Pennsylvania, however, responded to the survey, and the individual represented a very large company. Not surprising, managers in New York indicated they believed it would be relatively easy for their employees to obtain alternative employment in the same geographic region or nearby.

Table 3.12. Percent of Mangers Indicating Options for Employment

State	Do Not Know	Easily Find	Difficult	Leave Area
Maryland	43	0	29	29
North Carolina	8	31	31	31
New Jersey	60	40	20	0
New York	0	67	33	0
Pennsylvania	0	0	100	0
Virginia	33	33	33	0
Total	26	29	32	16

3.5 Potential Influence of Regulations on Processing

In an effort to better understand how management and regulation might affect processors and processing labor, plant mangers were asked to respond to four questions about management and regulation: (1) What effects, if any, have changes in federal or state fishery regulations made to your business; (2) What effects, if any, have changes in local land-use policy and other developments made to your business; (3) What effects, if any, have environmental regulations made to your business; and (4) What effects, if any, have occupational health and safety and labor regulations made to your business.

Responses to the questions widely varied. Despite difficulty preparing a quantitative assessment of responses, useful information was obtained from these questions. It became quite clear that processors were not adequately familiar with the regulatory process, or what agency was responsible for what (except OSHA, the Occupational Safety and Health Administration). In many instances, federal agencies were confused with local and state agencies, but the most common confusion was between who had the responsibility for fishery management—the federal or state government. After reviewing the responses, however, it was possible to develop a scoring system for the responses: (1) a zero indicated that the respondent believed the regulation had no effect; (2) a one indicated that the respondent believed the regulation had some level of effort; (3) a two indicated that the respondent believed the regulation had a significant effect, and (4) a three indicated the respondent did not know whether or not a regulation had affected processing operations.

3.5.1 State and Federal Fishery Regulations

Relative to the processors in all regions, approximately 71 % indicated they

believed that fisheries management and regulations had substantially affected their business (Table 3.13). Most of the processors, however, were referring to state, rather than federal, fisheries management and regulations, particularly with respect to blue crabs and oysters. Three processors who had indicated that management had a large impact on their business—one in New York, one in New Jersey, and one in Maryland— actually viewed the impact as a plus or positive impact. All three noted that federal management of the surfclam and ocean quahog fishery, particularly the imposition of individual transferable quotas, had substantially improved their businesses.

A large majority of all processors in all six states indicated that they believed that fisheries management and regulation had a substantial negative impact on their businesses. The percentage response from Pennsylvania is misleading because only one processor from Pennsylvania provided information. Most of the processors in Maryland, Virginia, and North Carolina who responded that management had a large impact on their business were responding to state regulations on blue crabs, oysters, rockfish or striped bass, and summer flounder. North Carolina processors also indicated that state regulations on the harvesting of shrimp had substantially affected their businesses. Although processors in New Jersey also indicated that state regulations had affected their businesses, several processors indicated that federal regulations on sea scallops, mackerel, herring, and squid had substantially affected their businesses. While 66.7 % of the New York processors indicated that fisheries management and regulations had substantially affected their businesses, it appears that many of these processors confused fishery regulations with other regulations affecting seafood quality and safety.

Table 3.13. Impacts of Fisheries Management on Processors

State	No Effect	Some Effect	A Large Effect	Do Not Know
New York	0.0	33.3	66.7	0.0
New Jersey	40.0	0.0	60.0	0.0
Pennsylvania	0.0	0.0	100.0	0.0
Maryland	14.3	0.0	85.7	0.0
Virginia	11.1	11.1	77.8	0.0
North Carolina	23.1	15.4	61.5	0.0
Total	18.4	10.5	71.1	0.0

3.5.2 Local Land-Use Policies

It has often been noted that local use policies are forcing both fishermen and

processors out of business. Alternatively, as state and federal regulations affecting local land use are increased to protect the environment or control pollution and coastal usage, it has become increasingly difficult for processors and fishermen to operate. It was, thus, unexpected that a large majority (81.6 %) of the processors indicated they did not perceive local land-use policies as having a detrimental impact on their businesses (Table 3.14).

On a state basis, the largest percentage of processors indicating that local land-use policies had some level of negative impact was from New York. They expressed concerns about planned residential development in various neighborhoods which might force them to close their businesses. Processors from Maryland and Virginia indicating a large impact on their businesses were mostly concerned about regulations affecting wastewater discharge.

Table 3.14. Impacts of Land Use Policies on Processors

State	No Effect	Some Effect	A Large Effect	Do Not Know
New York	66.7	33.3	0.0	0.0
New Jersey	100.0	0.0	0.0	0.0
Pennsylvania	100.0	0.0	0.0	0.0
Maryland	71.4	14.3	14.3	0.0
Virginia	88.9	0.0	11.1	0.0
North Carolina	76.9	15.4	7.7	0.0
Total	81.6	10.5	7.9	0.0

3.5.3 Environmental Regulations

There was a large level of disagreement among processors about whether or not environmental regulations had substantially affected their businesses. There also appeared to be considerable confusion about exactly what constituted environmental regulation. Relative to all 38 processors, 44.7 % indicated that environmental regulations had no effect on their businesses; 23.7 % indicated that environmental regulations had some effect on their businesses; 28.9 % indicated that environmental regulations had substantially affected their businesses; and 2.6 % indicated they did not know whether or not environmental regulations had affected their businesses (Table 3.15).

The most common concern raised by processors was environmental regulations controlling waste discharge. Processors in all states who indicated that environmental regulations had some or a large effect on their businesses cited the increased cost of controlling discharge from the plant. They also

indicated that the frequency of inspections of facilities relative to controlling waste discharge was a nuisance.

Table 3.15. Impacts of Environmental Regulations on Processors

State	No Effect	Some Effect	A Large Effect	Do Not Know
New York	66.7	33.3	0.0	0.0
New Jersey	60.0	0.0	40.0	0.0
Pennsylvania	0.0	0.0	100.0	0.0
Maryland	71.4	0.0	28.6	0.0
Virginia	22.2	66.7	11.1	0.0
North Carolina	38.5	15.4	38.5	7.7
Total	44.7	23.7	28.9	2.6

3.5.4 Occupational Health and Safety Regulations

Processors had little confusion about regulations affecting health and safety of workers. Nearly all processors immediately identified OSHA, which comes under the U.S. Department of Labor (Occupational Safety and Health Administration). A clear majority (50 %) of the processors, however, indicated that OSHA regulations no longer had a substantial impact on their businesses (Table 3.16). A reason that processors indicated that OSHA no longer substantially affected their businesses was that compliance with OSHA regulations was satisfied many years ago.

Processors in all states, however, indicated that OSHA regulations had some effect or a large effect on their businesses. Between 30.0 and 34.0 % of the processors in New York, Virginia, and North Carolina expressed some concerns about the impacts of OSHA regulations on their businesses. The two most common concerns expressed by processors were the additional costs of training and maintaining paperwork and complying with changing regulations.

Table 3.16. Impacts of Health and Safety Regulations on Processors

State	No Effect	Some Effect	A Large Effect	Do Not Know
New York	33.3	33.3	33.3	0.0
New Jersey	60.0	20.0	20.0	0.0
Pennsylvania	0.0	0.0	100.0	0.0
Maryland	57.1	28.6	14.3	0.0
Virginia	55.6	11.1	33.3	0.0
North Carolina	46.2	23.1	30.8	0.0
Total	50.0	21.1	28.9	0.0

3.6 Business Plans for the Future

During the time the survey was conducted, several processors indicated they were either no longer processing or had substantially reduced their processing activities. In addition, those firms, which indicated they were still processing large quantities, also indicated that they increasingly relied on foreign imports. The observed decline in processing activities for the firms included in the survey has also been suggested as occurring on a national basis. This is not, however, the pattern depicted in the most recent Fisheries of the United States (NOAA Fisheries, 2004). In 1995, U.S. processors produced 385.3 million pounds of processed product, and in 2004, they produced 590.1 million pounds of product, which represented a 53.2 % increase in the production of processed products. Between 2003 and 2004, however, the production of processed products decreased by 22.3 million pounds. And between 2001 and 2004, the number of firms engaged in processing decreased from 996 to 897. It is, thus, unclear as to whether or not processing activities are actually in a state of decline.

In the survey conducted for this study, respondents were asked to indicate their future plans relative to seven possible responses: (1) expansion of the operation, (2) contraction of the operation, (3) diversification or redirection of product line, (4) capital investments to increase labor productivity and reduce labor costs, (5) increased reliance on other businesses, (6) decreased reliance on other businesses, and (7) other.

Of the 38 firms responding to the survey, 32.4 % indicated they planned to expand processing activities in the future (Table 3.17). Nearly 11 %, however, indicated that they were planning on contracting their businesses in the future. Almost 30 % of the processors indicated they had plans for product diversification. Only 5.4 % of the processors indicated they planned to make major capital investments in the future. Eleven percent of the processors

indicated they expected to increase their reliance on other businesses in the future; no processor indicated they expected to decrease their reliance on other businesses in the future. Almost 38 % of the processors indicated they had other plans for their business in the future. A large percentage of the respondents indicating other plans indicated that their other plans were actually to maintain the status quo (i.e., make no changes).

Table 3.17. Future Plans of Processors

State	Expansion	Contraction	Diversification	Capital Investments	Increased Reliance	Decreased Reliance	Other
New York	33.3	0.0	66.7	33.3	33.3	0.0	33.3
New Jersey	60.0	0.0	60.0	20.0	20.0	0.0	20.0
Pennsylvania	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maryland	28.6	14.3	14.3	0.0	0.0	0.0	57.1
Virginia	55.6	11.1	33.3	0.0	22.2	0.0	22.2
North Carolina	8.3	16.7	16.7	0.0	0.0	0.0	50.0
Total	32.4	10.8	29.7	5.4	10.8	0.0	37.8

There was no discernible pattern in the responses by those processors indicating plans to expand activities in the future. Most of the processors, however, were engaged in processing a wide variety of products; increasing dependence on foreign imports; and having the capability to process sea scallops. Very few plant firms engaged in processing blue crabs or sea scallops indicated expansion of operations in the future. Most of these firms, in fact, indicated potential contraction, maintenance of the status quo, or product diversification.

4.0 Summary and Conclusions

The Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA) requires NOAA Fisheries (National Marine Fisheries Service) to manage living marine resources for optimum sustainable utilization. A multiplicity of other federal statutes, along with policies of NOAA Fisheries, requires that an environmental impact statement (EIS) be prepared for all management plans and related actions pertaining to all species regulated under the MSFCMA. In addition to providing a description of the environment and underlying population dynamics, an EIS must also provide estimates of the social and economic consequences of proposed regulations, particularly relative to the status quo.

There are eight national standards (NS), which govern fisheries management and regulation. All are important, but NS 1 and NS 8 appear to be two national standards which have been subject to considerable controversy. National Standard 1 requires NOAA to address biological overfishing. National Standard 8 states that "conservation and management measures, shall, consistent with the conservation requirements of the MSFCMA (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities."

To a large extent, however, data inadequacies have limited the ability to adequately assess the potential social and economic ramifications of fisheries management strategies and regulations. This has particularly been the case relative to processors and labor employed in the processing of finfish and shellfish. Subsequently, the Northeast Fisheries Science Center (NEFSC) provided funding to collect and compile data on processing activities in the Mid-Atlantic region, which includes the states between New York and North Carolina.

The collection of the information required the development of a sampling scheme and survey instrument. Sample size was determined in accordance pre-selected error levels for production, employment, the value of processed project, and the available budget. The survey instrument was finalized after field testing several times. The survey required interviews with plant managers, owners, and employees. Interviews were completed for 38 processing plants.

Of the 38 firms interviewed, 19 reported that they had some dependency on species harvested in the Northwest Atlantic and subject to management under the MSFCMA or directly by NOAA (e.g., selected species of tuna). When

asked about whether or not fisheries management had affected their businesses, 81.6 % of the respondents indicated that it had affected their business. Not all fisheries management, however, was implemented under the MSFCMA; state agencies also managed many of the species the firms processed.

In terms of where product for processing was obtained, many processors indicated that they obtain their raw materials from foreign sources, and that this had been increasing over time. Relative to the species subject to a federal FMP, most of the raw material was obtained either in state or from one of the states in the Mid-Atlantic region. This was particularly the case for squid, surfclam, ocean quahogs, monkfish, bluefish, and summer flounder. Cod, Atlantic pollock, and haddock, although processed and subject to federal FMPs, were mostly obtained from foreign sources (e.g., Iceland, Norway, and Canada).

Responses by the 38 firms indicated that the majority (85.0 %) of their processed product was sold or distributed to other wholesalers and processors. Sales directly to restaurants and retail outlets accounted for, respectively 4 and 11 % of their total sales. Relative to total sales by all firms, the also indicated that 50 % of their product was sold out of state, and 37 % was exported. Only one percent of the processed product was distributed in the same geographic area as the processing plant.

Employment levels were found to widely vary relative to products processed and with respect to state. Production workers (e.g., crab pickers, oyster shuckers, and processing workers at surfclam and ocean quahog processing plants) were the major category in terms of number of individual employed. The average number of production workers per plant equaled 36.1, and the average number of individuals employed per plant equaled 62.0.

Wages and salaries were difficult to determine because of a wide variation in job category, amount paid, basis of payment (hourly or per unit of production) and reluctance by plant managers to provide appropriate information. Based on the information available, individuals employed to pick crab meat earned an average of $6.73 per hour; oyster shuckers earned an average rate of $7.32 per hour; and truck drivers received approximately $15.00 per hour. Mangers, foreman, and owners received between $30,000 and $100,000 per year, with some individuals reporting in excess of $100,000 per year.

Responses to questions about race generated responses about ethnicity, faith, nationality, and race. For example, at least one processor in New York characterized the employment base in terms of Caucasian and Caucasian-Jewish. Some other processors indicated employment relative to whether or not individuals were Filipinos or Caribbean. Nevertheless, the responses indicated

that African Americans (20.2 %), Hispanics (26.6 %), and Caucasians (51.6 %) accounted for the majority of employees.

Responses to a question about national origin indicated that 73.0 % of all employees were from the United States; 23.4 % were from Mexico; and the remainder was from approximately 20 other nations. Other nations included Korea and Vietnam, Nigeria, Trinidad, Ecuador, the Philippines, Poland, Russia, and Thailand.

The majority of the workforce consisted of females, with 57.8 % of the workforce being female and 42.2 % being male. Females, however, held mostly jobs in production (processing workers) and relatively low-paid office support work. Males held approximately 3.2 of the administrative positions to every single administrative position held by a female. Female office workers, however, accounted for 2.2 % of the total employment at all plants, while males employed as office workers accounted for 0.6 % of the total employment at all plants.

A question about the importance of H2B workers was also asked, since the availability of H2B workers has become an important issue for processing companies. Responses by plant managers indicated that processors were substantially reliant on H2B workers. H2B workers accounted for 25.9 % of all employees at processing plants, with H2B production workers comprising 23.8 % of all plant employment.

A question about options for employment in other occupations revealed that processors did not believe it would be very difficult for employees to find work either in other occupations or regions. Of the 38 firms, only 32 % indicated it might be difficult for employees to find other work. Because of the employment of H2B workers and laws governing the employment of such workers, processors indicated that the H2B workers would likely to leave the area and return to their home country.

Processors were also asked about how they viewed the ramifications of management and regulation. They were asked questions about fisheries management and regulation, land-use policies, environmental regulations, and human health and safety regulations. There was considerable confusion among processors about what agency was responsible for specific types of management, with the largest confusion being about whether or not the state or the federal government had management authority for a particular species or fishery. The majority (81.6 %) of processors indicated they believed that fisheries management had either some effect or a large effect on their processing activities. Only 18.4 % of the processors believed that land-use policies had

negatively affected their business. Nearly 53.0 % of the processors believed that environmental policies had affected their business. Fifty percent of the processors indicated that they believed OSHA and regulated regulations had negatively affected their processing operations.

A remaining question about plans for the future was asked to assess the potential likelihood of exit from the industry or expansion, which would require an increase in the supply of raw materials. Of the 38 firms, 32.4 % indicated that they did, in fact, intend to expand their processing activities in the future. In contrast, only 10.8 % of the firms stated they planned to contract their opportunities. A large number of firms (29.7 %) indicated they planned to increase product diversification. Last, a large number of firms (37.8 %) indicated they had other plans for the future; when further questioned about these other plans, it was determined that most of these responses implied no change.